

## Chapter 2

### COMMODITIES EXAMINED AND DATA SOURCES

It is desirable to have the commodities in a flow study be as detailed as possible. There is a very good reason for this. If the commodity groups are too general it is possible to get nonsensical results during flow modeling. These results are due to the supply and demand vectors (productions and attractions) being made up of heterogeneous goods. For example, if one region produces television sets and another region produces radios a commodity classification system might very well place both industries in the same group. An examination of the flows of this commodity group might raise the question of why these areas would trade with each other. While the actual reason is obvious the vagueness of the grouping of industries might make it less so. So detail is desirable whenever possible.

Unfortunately, with detailed commodity groupings one loses a considerable amount of information. There are two reasons for this. First, publication of such data might reveal confidential aspects of the involved firms' operations, e.g., salaries, volume of production, and market areas. The various censuses have handled this problem by placing a (D) in any data cell that would "disclose" such proprietary information. Second, it is possible that the low number of instances of a specialized firm could result in sampling errors, and the expansion of such sampled data could introduce further errors into the analysis. Therefore, some censuses publish an (S) to indicate this potential sampling problem. As a result, the selection of data categories is always a compromise between detail and availability.

For this study, all two-digit categories of the Standard Transportation Commodity Code (STCC) were examined in terms of their significance to Indiana's economy. A set of 18 commodity groups was identified. An additional set of five groups was included in what is called "STCC 50" here. These additional manufactured goods categories include tobacco products (STCC 21), printed matter (STCC 27), rubber and miscellaneous plastic products (STCC 30), leather and leather products (STCC 31), instruments, including medical and photographic, as well as watches and clocks (STCC 38), and miscellaneous products of manufacturing (STCC 39) (see Table 2.1). These goods were excluded as individual groups primarily because they are not located in Indiana counties in high enough concentrations to have their data published, or because too few firms are involved in production or use of the commodity and for these reasons data are

Table 2.1 Major Commodity Groups Included in the Study

STCC Code	Commodity Group
01	Farm Products
11	Coal
14	Non-metallic Minerals
20	Food and Kindred Products
22	Basic Textiles
23	Apparel
24	Lumber and Woods Products
25	Furniture and Fixtures
26	Pulp and Paper Products
28	Chemicals and Allied Products
29	Petroleum and Coal Products
32	Stone, Clay and Glass Products
33	Primary Metal Products
34	Fabricated Metal Products
35	Machinery, except Electrical
36	Electrical Machinery
37	Transportation Equipment
40	Waste Products
50*	Other Manufactured Goods
60**	U.S. Mail Flows
70**	Express Mail Flows

\* Category 50 is not an STCC group. It includes STCC 21 (Tobacco Products), STCC 27 (Printed Matter), STCC 30 (Rubber and Miscellaneous Plastic Products), STCC 31 (Leather and Leather Products), STCC 38 (Instruments, including Medical and Photographic, as well as Watches and Clocks), and STCC 39 (Miscellaneous Manufacturing Products).

\*\* Categories 60 and 70 are not STCC groups; these numbers are used only for data coding.

not generally released for the flows.

The components of the 18 STCC industry groups, and the heterogeneous group identified as STCC 50 appear in Table 2.2. This table gives the reader an idea of the complexity of the commodity classification problem. For example, the broadest categories of the classification system for manufactured goods are STCC 2 and 3. The commodities in this study are examined at the two digit level (see Table 2.1). Table 2.2 includes commodities to the three digit level of detail, so the reader will have a better understanding of the components of the industries examined here. The STCC system actually goes to five digits in complexity.

Also examined here are the flows of mail by the U.S. Postal Service and overnight express mail operations of companies such as FedEx. In these cases the analysis is of movements not covered by the other analyses, e.g, the movement of manuscripts, contracts, magazines, and the like.

## Data Sources

The length of this project has resulted in a legion of data sources in comparison to those initially conceived of in the project design. That design anticipated using primarily models derived from the 1977 Census of Transportation to estimate the volume of goods produced or attracted by counties in Indiana and the states of the United States. This design was chosen because the most recent commodity flow data available was from that former census. There was no other census of such multimodal flow traffic available, although a commodity flow survey was underway at the time this project began. The data of that commodity survey was to become available in 1996, but this project was scheduled for completion much earlier than that.

In effect, much of what is included here in the way of modeling was done on the 1977 data. This could not be redone with the 1993 data simply because much of this is not available even now.<sup>1</sup> On the other hand all of the discussion of commodity flows into, through or within, and out of Indiana pertains to the 1993 data.

In addition to using elements of the 1977 Census of Transportation [1], and portions of the 1993 Commodity Flow Survey [2], this study also made use of the various years of County Business Patterns [3] and the carload waybill sample on CD-ROM [4] in the modeling. Exactly how each of these was used is left to a later chapter that discusses the methodology of the project.

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<sup>1</sup>There is a tendency to think that the 1993 Commodity Flow Survey has been published, but in reality only the U.S. Summary and about half the state volumes are available at this time (May 1, 1997). This prevents a duplication of the earlier modeling. In addition, certain data needed for the attraction side of that modeling will apparently not be published in the near future.

Table 2.2 Major Commodity Groups and Standard Transportation Commodity Codes

STCC code	Descriptive title
01	Farm Products
011	Field Crops
012	Fresh Fruits or Tree Nuts
013	Fresh Vegetables
014	Livestock or Livestock Products
015	Poultry or Poultry Products
019	Miscellaneous Farm Products
11	Coal
111	Anthracite Coal
112	Bituminous Coal and Lignite
14	Non-metallic Minerals
141	Dimension Stone, Quarry
142	Crushed or Broken Stone
144	Gravel or Sand
145	Clay, Ceramic or Refractory Minerals
147	Chemical or Fertilizer Minerals
149	Miscellaneous Non-metallic Minerals
20	Food and Kindred Products
201	Meat, Poultry or Small Game, Fresh or Chilled
202	Dairy Products
203	Canned or Preserved Fruits Vegetables or Seafood
204	Grain Mill Products

205	Bakery Products
206	Sugar Beet or Cane
207	Confectionary or Related Products
208	Beverages or Flavoring Extracts
209	Miscellaneous Food Preparations or Kindred Products
21	Tobacco Products, excluding Insecticides
211	Cigarettes
212	Cigars
213	Chewing or Smoking Tobacco
214	Stemmed or Redried Tobacco
22	Textile Mill Products
221	Cotton Woven Fabrics
222	Man-Made Fibre or Silk Broad Woven Fabrics
223	Wool Broad-Woven Fabrics
224	Narrow Fabrics, Cotton, Silk, Wool or Glass or Other
225	Knit Fabrics
227	Floor Coverings
228	Thread or Yarn
229	Miscellaneous Textile Goods
23	Apparel, or Other Finished Textile Products or Knit Apparel
231	Men's, Youths, or Boys Clothing or Uniforms
233	Women's, Misses', Childrens, or Infants Clothing
235	Caps, Hats, or Millinery, or Hat Bodies
237	Fur Goods
238	Miscellaneous Apparel or Accessories

239	Miscellaneous Fabricated Textile Products
24	Lumber or Wood Products, excluding Furniture
241	Primary Forest or Wood Raw Materials
242	Sawmill or Planing Mill Products
243	Millwork or Prefabricated Wood Products or Plywood or Veneer
244	Wooden Containers
249	Miscellaneous Wood Products
25	Furniture or Fixtures
251	Household or Office Furniture
253	Public Building or Related Furniture
254	Lockers, Partitions, or Shelving
259	Miscellaneous Furniture and Fixtures
26	Pulp, Paper, or Allied Products
261	Pulp or Pulp Mill Products
262	Paper
263	Fibreboard, Paperboard, or Pulpboard
264	Converted Paper or Paperboard Products
265	Containers or Boxes, Paperboard, Fibreboard or Pulpboard
266	Building Paper or Building Board
27	Printed Matter
271	Newspapers
272	Periodicals
273	Books
274	Miscellaneous Printed Matter
276	Manifold Business Forms

277	Greeting Cards, Seals, Labels, or Tags
278	Blank books, Loose-leaf Binders, or Devices
279	Service Industries for Printing Trades
28	Chemicals or Allied Products
281	Industrial Inorganic or Organic Chemicals
282	Plastic Materials or Synthetic Fibers, Resins or Rubber
283	Drugs
284	Soap or Other Detergents, Cleaning Preparations, Cosmetics, Perfumes
285	Paints, Enamels, Lacquers, Shellacs, or Varnishes
286	Gum or Wood Chemicals
287	Agricultural Chemicals
289	Miscellaneous Chemical Products
29	Petroleum or Coal Products
291	Products of Petroleum Refining
295	Paving or Roofing Materials
299	Miscellaneous Coal or Petroleum Products
30	Rubber or Miscellaneous Rubber Products
301	Rubber Tires and Inner Tubes
302	Rubber or Plastic Footwear
303	Reclaimed Rubber
304	Rubber or Plastic Hose or Belting
306	Miscellaneous Fabricated Rubber Products
307	Miscellaneous Plastic Products
31	Leather or Leather Products
311	Leather

312	Industrial Leather Belting
313	Boot or Shoe Cut Stock or Findings
314	Footwear, Leather or Other Material
315	Leather Gloves or Mittens
316	Luggage, or Handbags, Leather or Other material
319	Leather Goods, not elsewhere classified
32	Clay, Concrete, Glass, or Stone Products
321	Flat Glass
322	Glass and Glassware, Pressed and Blown
324	Hydraulic Cement
325	Structural Clay Products
326	Pottery and Related Products
327	Concrete, Gypsum, and Plaster Products
328	Cut Stone and Stone Products
329	Abrasives and Asbestos Products
33	Primary Metal Products
331	Steel Works and Rolling Mill Products
332	Iron and Steel Castings
333	Nonferrous Metal Primary Smelter Products
335	Nonferrous Metal Basic Shapes
336	Nonferrous Metal Castings
339	Miscellaneous Primary Metal Products
34	Fabricated Metal Products, except Ordnance, Machinery, Transportation
341	Metal Cans
342	Cutlery, Hand Tools and General Hardware

343	Plumbing Fixtures and Heating Apparatus
344	Fabricated Structural Metal Products
345	Bolts, Nuts, Screws, Rivets, and Washers
346	Metal Stampings
348	Miscellaneous Fabricated Wire Products
349	Miscellaneous Fabricated Metal Products
35	Machinery, except Electrical
351	Engines and Turbines
352	Farm Machinery and Equipment
353	Construction, Mining, Materials Handling Machinery and Equipment
354	Metalworking Machinery and Equipment
355	Special Industry Machinery
356	General Industrial Machinery and Equipment
357	Office, Computing and Accounting Machines
358	Refrigeration and Service Industry Machines
359	Miscellaneous Machinery and Parts
36	Electrical Machinery, Equipment, and Supplies
361	Electrical Transmission Equipment
362	Electrical Industrial Apparatus
363	Household Appliances
364	Electric Lighting and Wiring Equipment
365	Radio and Television Receiving Sets
366	Communication Equipment
367	Electronic Components and Accessories
369	Miscellaneous Electrical Machinery. Equipment and Supplies

37	Transportation Equipment
371	Motor Vehicles and Equipment
372	Aircraft and Parts
373	Ships and Boats
374	Railroad Equipment
375	Motorcycles, Bicycles, and Parts
379	Miscellaneous Transportation Equipment
38	Instruments, Photographic and Medical Goods, Watches and Clocks
381	Engineering, Scientific and Laboratory Instruments
382	Measuring and Controlling Instruments
383	Optical Instruments and Lenses
384	Surgical, Medical, Dental Instruments and Supplies
385	Ophthalmic and Opticians Goods
386	Photographic Equipment and Supplies
387	Watches, Clocks, Clockwork Operated Devices and Parts
39	Miscellaneous Products of Manufacturing
391	Jewelry, Silverware and Plated Ware
393	Musical Instruments and Parts
394	Toys, Amusement, Sporting and Athletic Goods
395	Pens, Pencils, Other Office and Artists Materials
396	Costume Jewelry, Novelties, Buttons, and Notions
399	Miscellaneous Manufactured Products
40	Waste or Scrap Material
401	Ashes
402	Waste or Scrap

## References Cited

- [1] Bureau of the Census (1982), *1977 Census of Transportation*, Washington, DC: U.S. Department of Commerce.
- [2] Bureau of the Census (1996), *1992 Census of Transportation, Communications, and Utilities, "1993 Commodity Flow Survey,"* Washington, DC: U.S. Department of Commerce.
- [3] Bureau of the Census (1977), *County Business Patterns*, Washington, DC: U.S. Department of Commerce.
- [4] Bureau of Transport Statistics, *Railroad Carload Waybill Sample*, various years, Washington, DC: U.S. Department of Transportation, CD-ROM.